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Acceptance and awareness of breast reconstruction surgery among educated women in hail, kingdom of Saudi Arabia: A community-based study

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ABSTRACT

Background: Breast cancer incidence rate has risen and consider one of the most frequent malignancy worldwide. Surgery is continuously the most appropriate way for curing breast cancer; breast reconstruction is an important stage for breast cancer management and improves breast appearance. **Aim:** The study was carried out to find out the knowledge, awareness, and acceptance of reconstruction of the breast due to mastectomy among educated females in the Saudi population. **Methods:** A cross-sectional community-based study carried out to estimate the awareness, and acceptance of reconstruction of the breast due to mastectomy among educated females in Hail, Saudi Arabia. Online questionnaires consisting of 24 multiple choices questions were distributed to the targeted population who meets the requirements for inclusion criteria. Data entered through Microsoft Excel sheet then analyzed using the (SPSS) version 25.0. **Results:** we include (383) female participants, the majority were Saudi (97.4%). A (60.06%) of the participants were aware about reconstruction of the breast after breast removal surgery. However, most of them didn't know the advantages and disadvantages of reconstruction shows (81.7%). A (77.8%) of participants were not knew of the complications associated with reconstruction of the breast surgeries. Our study shows a (83.3%) of participants accepted the idea of reconstruction surgery. **Conclusion:** We concluded that there is a gap in the knowledge about various methods for breast cancer management, as well as reconstruction of the breast due to mastectomy even among educated participants, while acceptance of reconstruction was higher among the population.

Keywords: mastectomy, reconstruction, breast cancer, knowledge, and awareness.

1. INTRODUCTION

Breast cancer considers one of the highest malignancy rates worldwide, in Saudi Arabia it considered for 20% of all cancer among females. The most suitable way for curing breast cancer is surgery (Abbas, 2016). Breast reconstruction aims to increase the self-satisfaction among patient who undergone a mastectomy besides restoring natural appearance. Implant reconstruction and autogenous flaps considered the main two techniques for breast recon surgery and choosing which type depends on several factors including the patient's desire and health condition (Al-Ghazal et al., 2000; Hashem & Farahat, 2020). Statistically, the numbers indicate Demands for reconstruction surgery is increasing during the current decade, if compared to the previous decade, despite that and beside the positive influence on patient confidence and satisfaction, there are some patients insist on refusing reconstruction after having mastectomy and the reasons behind that not clearly understood, Sometimes it's due to some physiological and psychological factors (Al-Ghazal et al., 2000; Familusi et al., 2019). Also, women in well-developed countries have an increase in acceptance rate for breast recon, while a lot of women in the developing countries tend to reject this surgery (Al-Ghazal et al., 2000; Harcourt et al., 2001). According to ASPS survey, the lack of females' various options for reconstructive surgery of the breast due to mastectomy were in high percentage reaches 80% (Abbas, 2016). Therefore, the objective was to find out the level of knowledge, awareness, and acceptance of reconstruction among educated females in Saudi population.

2. METHODS & MATERIALS

A cross sectional study Targeting females in Saudi population, the study was conducted between May 8, 2021, and July 20, 2021. Ethical committee of the University of Hail's College of Medicine gave their approval prior to the study initiation (approved number H-2021-199). The computerized survey was utilized to obtain participants' informed consent with a 95 percent confidence interval and a 5% margin of error. Sample sizes of 383 of female participants were obtained. All the participants' knowledge and awareness were measured through a self-administered questionnaire with six data collection sections that was revised by the research supervisors before being translated into Arabic. In the first section, the participants were questioned about their demographics, their knowledge of BC in the second section, their knowledge about possibility and acceptance of reconstruction in the third section. The survey was disseminated via through the social media at random. The SPSS application Version 25 was used for analyzing the data. Statistical significance was defined as a P.value of < 0.05. The findings are presented using tables and figures.

3. RESULTS

383 people took part in the survey. Table 1 show that the many of the subjects were Saudi 97.4%, and non-Saudi represented 2.6% (10) of total sample size (383). Most of the subjects were married 66.8%, whilst Single, Divorced, and Widow accounted 27.9%, 4.2%, and 1.0% respectively, however, many of them their Educational level was Bachelor degree 61.4%, while Diploma degree, Student, Master degree, Illiterate, and Doctorate degree recorded 19.1%, 11.5%, 4.4%, 2.3% and 1.3% consecutive. The Participants mean age was 36.02 years with standard deviation of 11.28; the minimum age was 16 year old, while the maximum was 67 year old (Table 2). Most of respondents 59.5% think that lumpectomy only is a method of breast cancer treatment, only 7.8% of those who took part in the study had a breast mass, 66.7% had a benign mass and 60.0% breast affected (Right side) with statistical significance (p. value=0.000, 0.006). No statistical significance were found according to kind of mass (p value=0.000, 0.068) (Table3). In those who diagnosed with breast mass the average age were 33.43 years with standard deviation of 12.38, the minimum age was 15-year-old, while the maximum was 64-year-old (Table 4).

Table 1 Demographic data of the respondents (n= 383)

Variables	Frequency	Percent (%)
Nationality		
Saudi	373	97.4*
Non Saudi	10	2.6
Social status		
Single	107	27.9
Married	256	66.8*
Divorced	16	4.2
Widow	4	1.0
Educational level		

Illiterate	9	2.3
Student	44	11.5
Diploma degree	73	19.1
Bachelor degree	235	61.4*
Master degree	17	4.4
Doctorate degree	5	1.3

*Indicates the highest percent

Table 2 Descriptive Statistics of respondents' Age (n=383)

Variable	Mean	Std. Deviation	Minimum	Maximum
Age/years	36.02	11.28	16	67

Table 3 Frequencies and percentage Hx of BC and breast cancer awareness (n =383)

Question	F	%	X ²	P.value
Which of the following do you think is a method of breast cancer management?				
removal of the entire breast	74	19.3	406.987	0.000*
Excision of the lump only	228	59.5*		
Radiotherapy	16	4.2		
Chemotherapy	51	13.3		
Hormonal therapy	14	3.7		
Did you diagnose with breast mass before?				
Yes	30	7.8	272.399	0.000*
No	353	92.2*		
Diagnosed with breast mass before (n=30)				
What kind of mass?				
Malignant	10	33.3	3.333	0.068
Benign	20	66.7*		
I don't know	0	0.0		
Which breast affected?				
Right side	18	60.0*	10.400	0.006*
Left side	8	26.7		
Both sides	4	13.3		

*Indicates the highest percent

*p. value is significant level 0.01

Table 4 Descriptive Statistics of respondents' Age at the incidence of cancer (n=38)

Variable	Mean	Std. Deviation	Minimum	Maximum
Age/years	33.43	12.38	15	64

Table 5 shows that most of respondents 60.6% are aware that breast reconstruction is possible after one or both Breast removal, 52.5% had their primary source of breast reconstruction information through Social media, while 56.9% selected "Breast reconstruction with patient's own tissue" as breast reconstruction options they know, 71.8% stated that "breast reconstruction safe", 78.1% thought that breast reconstruction could be performed in a separate operation after the mastectomy, The majority of them were unaware of the benefits and construction of early and late reconstructive surgery. 81.7%. while 60.6% thought that breast reconstruction can restore the appearance of the breast close to its preoperative state, 67.6% were not knew where these Surgery are conducted or who performs them, 77.8% were not knew of the risk associated with reconstructive surgeries and it's complications, 77.0% didn't know that health insurance cover breast reconstruction surgeries, and 81.2% were willing that health insurance cover breast reconstruction surgeries. There was statistical significance (p. value=0.000, 0.007).

Majority of respondents haven't undergone a breast reconstruction before 97.4%, 83.3% of the Participants accept the idea of breast reconstruction, 34.8% of those accept the idea of breast reconstruction for psychological state while 32.8% don't accept the idea of breast recon surgery due to the Fear of failure of the operation with statistical significance (p value=0.000) (figure 1,2,3).

Table 5 Knowledge about the breast Recon after mastectomy (n =383).

Question	F	%	X ²	P. value
Do you know that it may reconstruct the breast(s) after one or both breasts removed in breast cancer management?				
Yes	232	60.6*	17.131	0.000*
No	151	39.4		
What is your information source about breast reconstruction?				
Doctors / health care providers	57	14.9	81.295	0.000*
Social media	201	52.5*		
Friends/relatives	125	32.6		
What are breast reconstruction options you know?				
Implants-based breast reconstruction	165	43.1	7.334	0.007*
Breast reconstruction with patient's own tissue	218	56.9*		
Is breast reconstruction safe?				
Yes	275	71.8*	72.817	0.000*
No	108	28.2		
When do you think that breast reconstruction could be performed?				
At the same time that the affected breast(s) was removed.	84	21.9	120.692	0.000*
after the affected breast(s) was removed	299	78.1*		
Do you know the disadvantages and advantages of early and late Reconstruction?				
Yes	70	18.3	154.175	0.000*
No	313	81.7*		
Do you think that breast reconstruction can restore the appearance of the breast close to its preoperative state?				
Yes	232	60.6*	17.131	0.000*
No	151	39.4		
Are you aware where these procedures are conducted and who do them?				
Yes	124	32.4	47.585	0.000*
No	259	67.6*		
Are aware of the risks and complications associated with the breast recon surgeries?				
Yes	85	22.2	118.457	0.000*
No	298	77.8*		
Do you think breast reconstruction operations are covered by health insurance?				
Yes	34	8.9	330.554	0.000*
No	54	14.1		
I don't know	295	77.0*		
Are you ready to do the surgeries if your doctor has mentioned it to you?				
Yes	311	81.2*	149.141	0.000*
No	72	18.8		

*Indicates the highest percent

*p. value is significant level 0.01

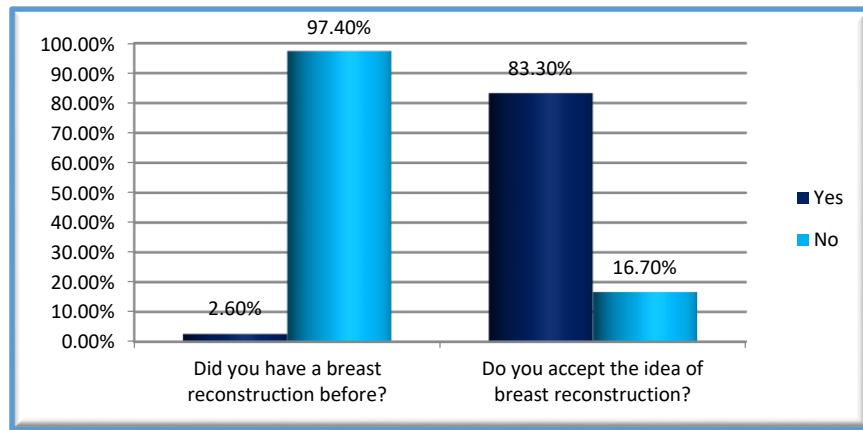


Figure 1 Breast reconstruction Acceptance

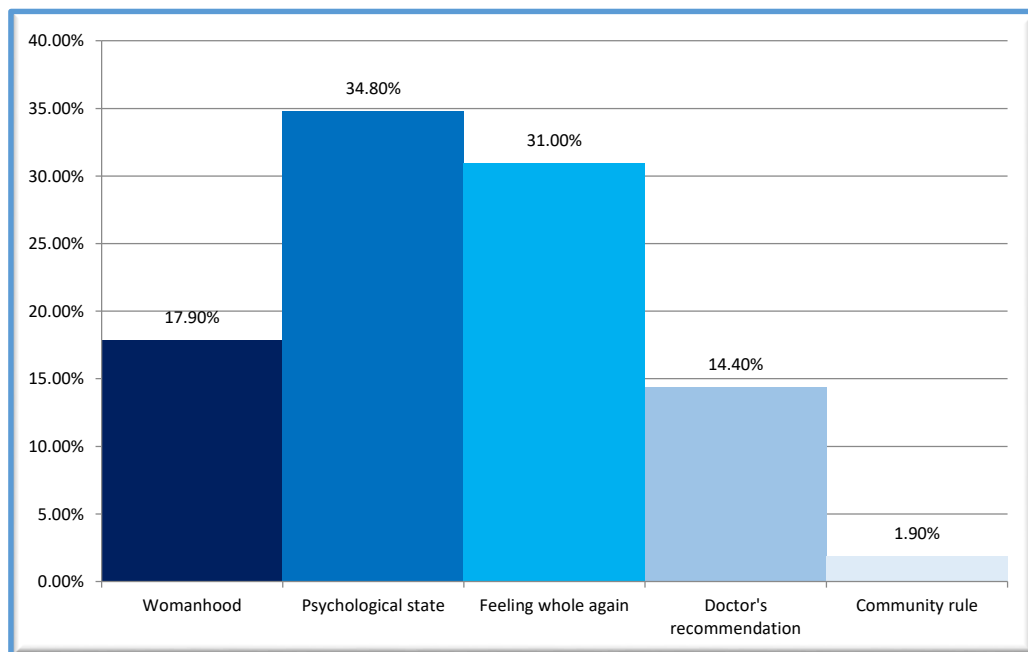


Figure 2 Causes of Breast reconstruction Acceptance

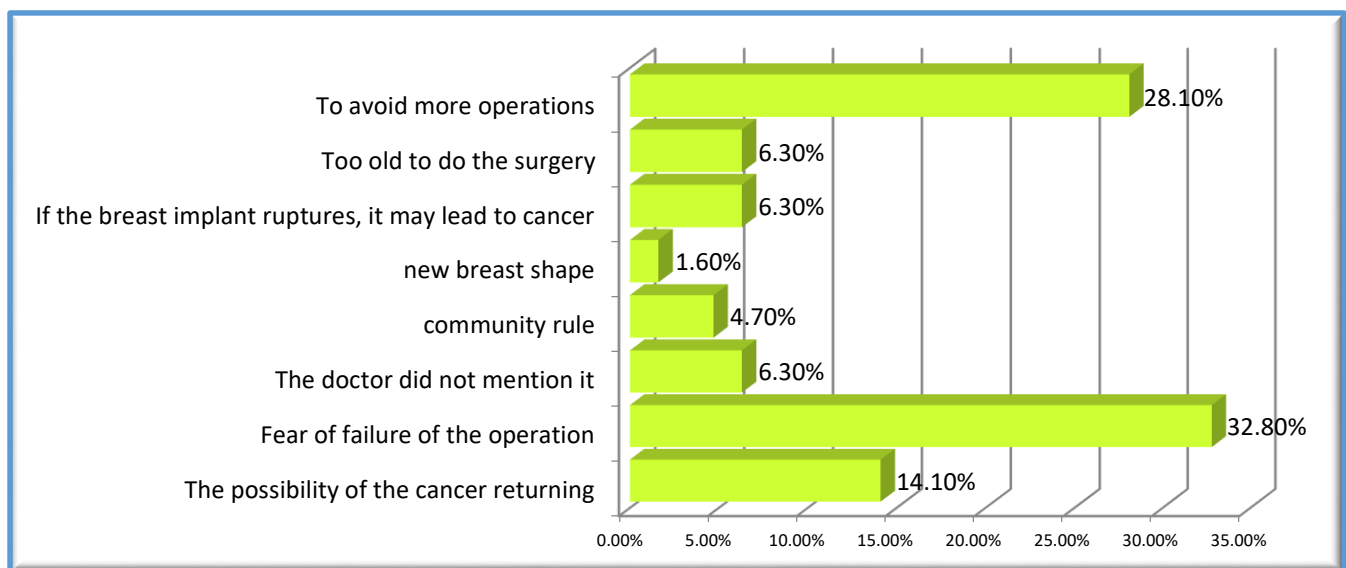


Figure 3 Causes of refusal of breast reconstruction

4. DISCUSSION

According to our data, the many of the participants were Saudi 97.4%, and non-Saudi represented 2.6% (10) of total sample size (383). The majority of those who responded were married 66.8%. Most of our participants were holder of bachelor's degree as they answered the education level. Other research was also carried out in Saudi Arabia showed almost the same demographic features of the respondents, where the most of participants were Saudi, married, and had bachelor's degree (Morad Alkaff et al., 2019; Mortada et al., 2020). And this shows us the features of groups that are interested in such studies which facilitate awareness campaigns. According to the findings, the participants' average age was 36.02, however, in other studies respondents were much older in which the mean ages were 57.7, 58.1, and 55 respectively (Familiusi et al., 2019; Momoh et al., 2019; Youl et al., 2019). While in another study respondents were much younger with mean age 20.5, because the study was targeting university students in Turkey (Abbas, 2016).

Participants with history of BC represent a small portion of this study (7.8%) their kind of mass was mostly benign (66.7%). The affected women's average age was 33.43. Also, previous national study shows nearly the same result where (8.1%) of the subjects was reported to have a breast mass (Morad Alkaff et al., 2019). Being in the same area explains the similarities of results, where the patients may be exposed to the same environments. A study done in Turkey in 2016 found that no history of BC in the Participants (Abbas, 2016). While in another study, breast reconstruction Awareness was assessed pre and post health awareness symposium among the attendees, 49.2% out of the attendees were BC patients/survivors (Familiusi et al., 2019). 59.5% of our participants choose "surgical removal of the lump only" for BC TX, while "hormonal therapy" was the least chosen answer. Although most participants were educated, our community has a lack of awareness of the many modalities of BC treatment, the majority of our population is only aware of one method. In contrast, previous studies approved that knowledge of participants about BC diagnosis and treatment was higher than breast reconstructive surgery as an option after mastectomy (Kothari et al., 2012; Abbas, 2016; Familiusi et al., 2019).

According to our findings, the majority of educated women were aware of breast reconstruction as an option they can choose by 60.6% of (383) respond, which correlate to other studies that the higher the women were educated the more she will choose reconstruction as an option (Morad Alkaff et al., 2019). Like Most people in our century, they are getting their information from social media. This study illustrates that Social media was used by more than half of the participants to obtain information by 52.5 % and only 14.9% obtained their information from a doctor. As a necessity, health-care practitioners must devise a strategy for reaching out to people and invest more in the awareness camping, this result is correlated with Prior studies that have noted the same result.

The most important source of breast recon knowledge has been identified as mass media such as television and radio. by 92.7% of participants (Abbas, 2016). As stated by Morad Alkaff et al., (2019) surgeons shall be encouraged to keep the educational websites up to date so that patients will get more knowledge and maximum benefits. Out of the 383 participants only 43.1% had knowledge about reconstruction surgery with implants as an option. Widening the knowledge about autologous options is important because many women would choose not to get reconstruction after the primary procedure if that meant having an implant or foreign object in their body (Abbas, 2016). One unanticipated finding was that a high number as 56.9% of participant selected "Breast reconstruction with patient's own tissue" as the reconstruction options that they know about unlike other study most of their participant knew about implant as an option of breast reconstruction as in lots of females were aware about implants (177, 17.7% of the total), The fact that the study's participants were all educated women may have contributed to this outcome (Kothari et al., 2012).

The vast majority (71.8 %) in this study thought that reconstructive surgery of the breast is a risk-free procedure and only 28.2% of participated thought it was a risky procedure this result is consistent with Mortada et al., (2020) that show that 65.8% of the participants choose breast reconstruction to be a risk-free option to close the loop of BC. On the contrary, 21.4% answered that surgery is a risky many of the respondents did not come to knowledge of synchronized reconstruction procedure and 78.1% of them answered that they need separation surgery to reconstruct their breast. That showed in previous study which had taken place in Turkish female university students 67.4% of the participants answered that they are familiar with delayed mastectomy (Abbas, 2016). This study is like our study both were done on educated women. Only 18.3% of (383) acknowledge the advantages and disadvantage of synchronized and separate reconstruction procedure even though the sample are educated women which highlights what came in previous studies that women who got involved with oncologist or plastic surgeon had more information than women in general population. So health care provider need to find an alternative way to shears information and activated more camping to increase the awareness (Familiusi et al., 2019; Momoh et al., 2019).

Huge number of the survey participants believes that the reconstruction surgery can bring back the breast similar to its preoperative state. These results matches those of previous study "178 (76.1%) stated that Reconstruction can restore breast

appearance close to its preoperative state" (Mortada et al., 2020). The predominance of participated had no idea where these surgeries are performed and who do them only 32.4 % of (383) of them knew this information. This outcome is consistent with that of Kothari et al., (2012) study that shows only 352. It's also important to talk to women who are thinking about having their breasts recon about the nature and risk of surgical complications (Harcourt et al., 2001). In this study, only 22.2 % of participants knew about the potential complications and risks associated with such procedures.

Another interesting finding is that a significant pro-portion of participants who knew about breast reconstruction had inadequate knowledge about important aspects of breast surgery such as reconstruction methods, timing options, surgical safety, and We believe that this incomplete understanding can also be an obstacle to breast reconstruction (Abbas, 2016). 77.0% of respondents state that they did not know if health insurance covers breast reconstruction surgeries. Other studies also show the deficit of information for insurance cover to have breast reconcentration (Abbas, 2016; Familusi et al., 2019; Momoh et al., 2019). A large percent of participants (81.1 %) state they are ready to do the surgery if it was mentioned by the doctor. The doctors should participate in the awareness and encouraging woman going through mastectomy to have reconstruction surgery, also explaining the risks and complication and discuss the types of surgeries, who are the people candidate for each surgery, the benefits of each one and to give information about the insurance. Those deficit was also shown in previous studies (Momoh et al., 2019; Morad Alkaff et al., 2019).

Our study targeted educated women and not focused on women who had undergone a breast recon surgery because this study is concentrated on assessing the awareness of reconstruction surgeries after having mastectomy. Most of our participants 97.4% did not have a previous breast reconstruction. And therefore, it emphasizes the previous point that most people who didn't have BC or interaction with an oncologist lack information on breast reconstruction (Familusi et al., 2019). An amazing result is that a great number (319) from total participants accept the idea of breast reconstruction. This finding contradicts another study that states that Arabis do not tend to consider restriction surgery due to the different culture than western or developing countries (Morad Alkaff et al., 2019).

Breast reconstruction is acceptable to most of respondents because of the psychological state by 34.8% and least cause was chosen because of Community rule. Also, the other studies showed that psychological status was the highest cause to choose breast Reconstruction by 40.2% (Morad Alkaff et al., 2019). As another research has highlighted this important point, that some women gain back there confident and the feeling of femininity after breast recon (Al-Ghazal et al., 2000). 32.8% don't accept the idea of reconstruction surgery due to the fear of the failure of the operation which is a normal fear the frightens ever person going through any operation those patients need more consultation with their doctor to feel the courage to go through such operation and to know the outcome of the operation before the operation take place so that why the general population need to increase the awareness of these type of procedures on the other side there are a large number that can't be over ruled said they don't accept it because they want to avoid another operation and those don't have knowledge that the surgery can be simultaneously with the surgical excision of the lamp. For Those who need a mastectomy, the offer of reconstruction surgery should be mandatory (Al-Ghazal et al., 2000).

5. CONCLUSION

This study was done to assess the awareness and acceptance of reconstruction surgery among females in Hail population in Saudi Arabia. And we concluded that most participants were Saudi, married, and had bachelor's degree and their mean age 36.06. There is a knowledge gap about various methods of BC management, as well as reconstruction after mastectomy even among educated participants. Our population had a higher level of breast recon Acceptance. Therefore, more awareness campaigns targeting women in Hail population are recommended to increase awareness about BC treatment methods and availability of reconstruction procedures as an option after mastectomy.

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Author Contributions

All the authors listed above have participated equally in collecting the data, analyzing the data, writing the manuscript, and reviewing the article.

Ethical approval

The Research Ethics Committee at Hail university, Hail, Saudi Arabia gave their approval to the study (Ethical Approval Number: H-2021-199).

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Conflicts of interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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